[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0766; Directorate Identifier 2013-NE-26-AD; Amendment 39-18149; AD 2014-17-08R1]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Canada Corp. Turboprop Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are revising airworthiness directive (AD) 2014-17-08 for all Pratt & Whitney Canada Corp. (P&WC) PT6A-114 and PT6A-114A turboprop engines. AD 2014-17-08 required initial and repetitive borescope inspections (BSIs) of compressor turbine (CT) blades, and the removal from service of blades that fail inspection. This new AD adds an additional single crystal CT blade, reduces the affected population, and corrects the Credit for Previous Action paragraph. This AD was prompted by P&WC development of an additional single crystal CT blade that corrects the unsafe condition. We are issuing this AD to prevent failure of CT blades, which could result in damage to the engine and damage to the airplane.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain other publications listed in this AD as of October 8, 2014 (79 FR 52172, September 3, 2014).

ADDRESSES: For service information identified in this AD, contact Pratt & Whitney Canada Corp., 1000 Marie-Victorin, Longueuil, Quebec, Canada, J4G 1A1; phone: 800-268-8000; fax: 450-647-2888; Internet: www.pwc.ca. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125. Certain service information is also available on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2013-0766.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2013-0766; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7146; fax: 781-238-7199; email: barbara.caufield@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to revise AD 2014-17-08, Amendment 39-17961 (79 FR 52172, September 3, 2014), ("AD 2014-17-08"). AD 2014-17-08 applied to all P&WC PT6A-114 and PT6A-114A turboprop engines. The NPRM published in the Federal Register on December 1, 2014

(79 FR 71031). The NPRM was prompted by P&WC development of an additional single crystal CT blade that corrects the unsafe condition. The addition of this new part number (P/N) reduces the affected population. The NPRM proposed to retain all the requirements of AD 2014-17-08. The NPRM also proposed to add the additional single crystal CT blade that corrects the unsafe condition, reduce the affected population, and correct the Credit for Previous Action paragraph. We are issuing this AD to prevent failure of CT blades, which could result in damage to the engine and damage to the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 71031, December 1, 2014) and the FAA's response to each comment.

Request to Clarify Disposition of Removed CT Blades

Hawkins Aero Engineering, Inc. and another commenter requested that we state more clearly whether pre-SB (service bulletin) PT6A-72-1669 CT blades removed as a result of this AD can be reinstalled in the same engine, the same model engine, or a different model engine.

We disagree. Paragraph (e)(1)(iii)(B) of this AD clearly states that to re-install removed pre-SB PT6A-72-1669 CT blades, the blades must pass a two-blade metallurgical inspection to determine airworthiness in accordance with paragraph 3.B., Accomplishment Instructions, of P&WC Service Bulletin (SB) No. PT6A-72-1669, Revision 9, dated June 28, 2013. We did not change this AD.

Request to Not Mandate Installation of Single Crystal CT Blades

One commenter requested that we not mandate the installation of single crystal CT blades because two of the P/Ns cited as replacement blades have experienced low-time failures, indicating a design or manufacturing flaw.

We disagree. While there have been some failures of single crystal CT blades on a different engine model, that failure mode is well understood and does not affect the engines that are the subject of this AD. For the engines that are subject to this AD, single crystal blades provide a significant improvement in durability and a significant reduction in CT blade failures overall. We did not change this AD.

Request to Reference Two Additional SBs

One commenter requested that we reference P&WC SBs No. PT6A-72-1727 and No. PT6A-72-1749 in addition to P&WC SB No. PT6A-72-1669 because each one of these SBs references one of the three single crystal CT blades that can be installed as terminating action to this AD. P&WC SB No. PT6A-72-1669 alone only references one of the three blades listed as terminating action in paragraph (e)(2) of this AD.

We agree. We added references to the two additional SBs in paragraph (h)(2) of this AD.

Request to Include Alternative Method of Compliance (AMOC) for Inspections

Hawkins Aero Engineering, Inc. requested that we include in the AD an AMOC to allow a visual inspection, accomplished by splitting the engine at the C-flange, as an alternative method to the required periodic borescope inspection of pre-SB PT6A-72-1669 CT blades. The commenter states that this suggested visual method would provide easier detection of cracks.

We disagree. This AD contains the required method for resolving the unsafe condition. If an operator can accomplish required actions in a better way, or a way that better suits the operator's business processes, and the alternative method provides an acceptable level of safety, then the operator can apply for an AMOC to use that method to address the unsafe condition in accordance with paragraph (g)(2) of this AD. We did not change this AD.

Request that We Address Failures in Additional Blades

Hawkins Aero Engineering, Inc. requested that we address single crystal CT blade failures either in this or in another AD because there have been several low-time single crystal CT blade failures in several different PT6 engine models, some of which are single engine installations.

We disagree. Low-time failures that occurred on engine models not affected by this AD are due to a failure mode that is well understood. That failure mode does not occur in the engine models that are the subject of this AD. We did not change this AD.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 71031, December 1, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in NPRM (79 FR 71031, December 1, 2014).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Costs of Compliance

We estimate that this AD affects 300 engines installed on airplanes of U.S. registry. We also estimate that it would take about 4 hours per engine to perform the required inspection and 8 hours to replace the blades. The average labor rate is $85 per hour. Required parts cost about $59,334 per engine. Based on these figures, we estimate the cost of this AD on U.S. operators to be $18,106,200.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2014-17-08, Amendment 39-17961 (79 FR 52172, September 3, 2014), and adding the following new AD:

2014-17-08R1 **Pratt & Whitney Canada Corp.**: Amendment 39-18149; Docket No. FAA-2013-0766; Directorate Identifier 2013-NE-26-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2014-17-08, Amendment 39-17961 (79 FR 52172, September 3, 2014).

(c) Applicability

This AD applies to all Pratt & Whitney Canada Corp. (P&WC) PT6A-114 and PT6A-114A turboprop engines.

(d) Unsafe Condition

This AD was prompted by several incidents of compressor turbine (CT) blade failure, causing power loss, and engine failure. We are issuing this AD to prevent failure of CT blades, which could lead to damage to the engine and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) For engines installed with CT blades other than P&WC single crystal CT blades, part numbers (P/Ns) 3072791-01, 3072791-02, or 3079351-01, do the following:

(i) Until removed, per the requirements of this AD, borescope inspect the CT blade leading and trailing edges, within the following intervals, whichever occurs later:

(A) 150 operating hours after October 8, 2014; or

(B) 500 operating hours since new; or

(C) 500 operating hours since last borescope inspection (BSI) of the CT blades; or

(D) Before next flight after the effective date of this AD.

(ii) Thereafter, repeat the inspection required by paragraph (e)(1)(i) of this AD every 500 flight hours time since last inspection.

(iii) At the next hot section inspection (HSI) after the effective date of this AD, and each HSI thereafter, replace the complete set of CT blades with any of the following:

(A) New CT blades;

(B) CT blades that have passed a two-blade metallurgical inspection. Use paragraph 3.B., Accomplishment Instructions, of P&WC Service Bulletin (SB) No. PT6A-72-1669, Revision 9, dated June 28, 2013, to do the inspection; or

(C) P&WC single crystal CT blades, P/N 3072791-01, 3072791-02, or 3079351-01.

(2) Replacement of the complete set of CT blades with single crystal CT blades, P/N 3072791-01, 3072791-02, or 3079351-01 is terminating action for the requirements of paragraph (e)(1) of this AD.

(3) By October 8, 2017, replace the complete set of CT blades with P&WC single crystal CT blades, P/N 3072791-01, 3072791-02, or 3079351-01.

(f) Credit for Previous Action

Performance of the metallurgical examination specified in paragraph (e)(1)(iii)(B) of this AD on CT blades other than P&WC single crystal CT blades, P/N 3072791-01, 3072791-02, or 3079351-01, before the effective date of this AD fulfills the initial inspection requirements of paragraph (e)(1)(i) of this AD. However, you must still comply with the repetitive BSI requirement of paragraph (e)(1)(ii) of this AD until you complete the mandatory terminating action of paragraph (e)(3) of this AD.

(g) Alternative Methods of Compliance (AMOCs)

(1) AMOCs previously approved for AD 2014-17-08, Amendment 39-17961 (79 FR 52172, September 3, 2014) are approved for this AD.

(2) The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(h) Related Information

(1) For more information about this AD, contact Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7146; fax: 781-238-7199; email: barbara.caufield@faa.gov.

(2) P&WC SB No. PT6A-72-1727, dated August 23, 2013, and SB No. PT6A-72-1749, dated September 23, 2014, which are not incorporated by reference in this AD, can be obtained from P&WC using the contact information in paragraph (i)(4) of this AD.

(i) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on October 8, 2014 (79 FR 52172, September 3, 2014).

(i) Pratt & Whitney Canada Service Bulletin No. PT6A-72-1669, Revision 9, dated June 28, 2013.

(ii) Reserved.

(4) For P&WC service information identified in this AD, contact Pratt & Whitney Canada Corp., 1000 Marie-Victorin, Longueuil, Quebec, Canada, J4G 1A1; phone: 800-268-8000; fax: 450-647-2888; Internet: www.pwc.ca.

(5) You may view this service information at FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(6) You may view this service information at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued in Burlington, Massachusetts, on April 17, 2015.

Thomas A. Boudreau,
Acting Directorate Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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